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ABSTRACT

This guide is intended to support the leader of a youth group in increasing the awareness of members of the need for good forest conservation practices. Sections include: (1) science fundamentals; (2) making informative exhibits; (3) gaining community involvement; (4) Christmas activities; (5) games and crafts; and (6) a list of resources and ordering instructions. (RE)

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Activities For Learning About Conservation of Forest Resources

A Guide for Leaders of Youth Groups

ED187553

U.S. Department of Agriculture
Forest Service
PA-1214

SE 030 899

Introduction

Every American youngster and adult is dependent upon natural resources for his very life. Without soil, water, plants, and animals, people couldn't enjoy the standard of living they do. Most adults know this, but do the youngsters?

Do the youngsters know that in spite of all-out fire prevention campaigns, people carelessly start about 125,000 forest fires yearly? Do they know that the absence of wildlife in an area may not be because of hunters or poachers, but simply because there is little or no food or shelter for wildlife? Do they know that stream pollution may result from one or all of three major causes—industrial waste, municipal waste, soil erosion? Do they know that forest insects kill at least 5 billion board feet of sawtimber every year? Do they know that although most of our sawtimber now lies west of the Great Plains, most of our forest land—75 percent of it, in fact—is in the East?

The natural resources of tomorrow depend on what we do today. We now have more than 220 million people in the United States. In the year 2000, there may be more than 300 million Americans. The potential of youth organizations as a conservation force increases every day. Are you—the youth leader—meeting the challenge? Are you leading your youngsters to conservation consciousness? If you are, *they* will lead *their* children to it when they take over the leadership job. When we take good care of the natural resources, we help to take good care of future generations.

Issued October 1978

This publication supersedes PA-457, Forestry Activities: A Guide for Youth Group Leaders.

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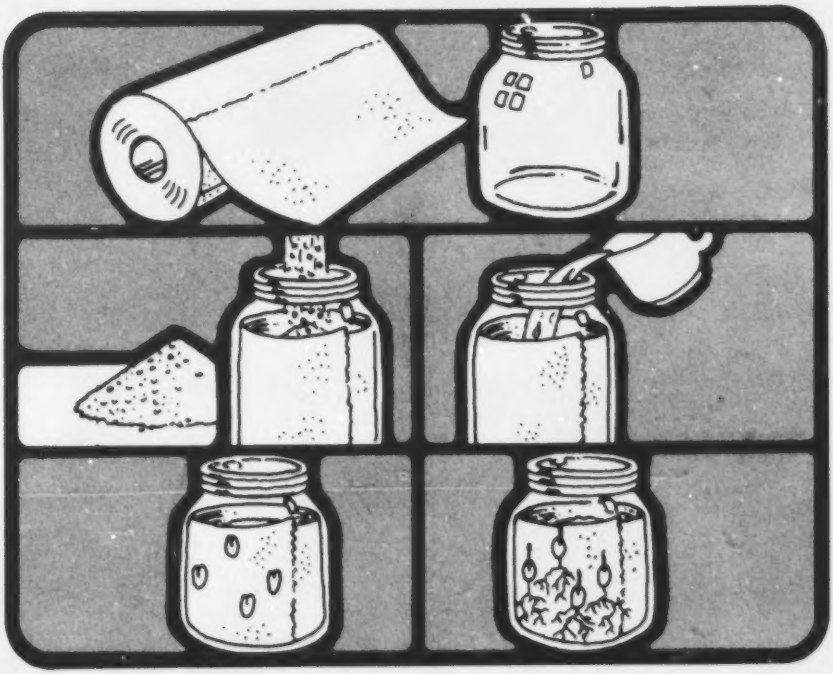


Science Fundamentals

Seeds Grow in a Picture Window

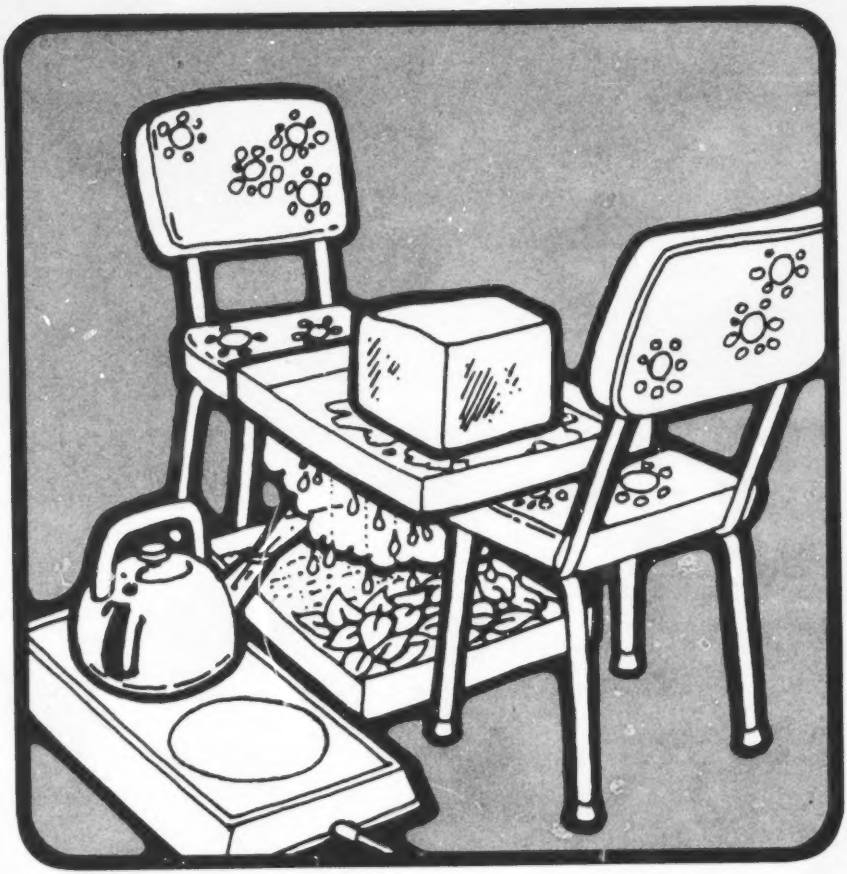
Watch a seed sprout to life, tiny roots search for moisture, leaves unfold to absorb the sun's rays.

We can't see what's happening when we plant seeds in the ground or in flower pots. But, by planting seeds in a transparent jar, or between two pieces of window glass or clear plastic, we can watch the marvel of plant growth. Here's how:

1. Line a fruit jar or a tall water glass with paper toweling, blotting paper, or other absorbent material.
2. Fill the jar with moist peat moss, cotton, excelsior, or sawdust.
3. Pour about an inch of water into the container.
4. Place pine or other conifer tree seeds, beans, corn, or grass seed between the paper and the glass.

Keep the glass in a warm place. Some kinds of seeds will sprout in a few days, others may take several weeks. Since each seed has its own food supply underneath its skin, it needs just air, water, and warmth. When seeds soak up water they swell and their skins burst. The tiny plants inside push up toward the light. Their roots move downward. As the seedlings use their stored food, their roots, stems, and leaves grow larger. Soon, powered by the energy of light, they can make their own food from water and minerals taken in by the roots and from carbon dioxide taken in by their leaves.

Plenty of good seed trees are needed to help start new forests.



Water Cycle From a Teakettle

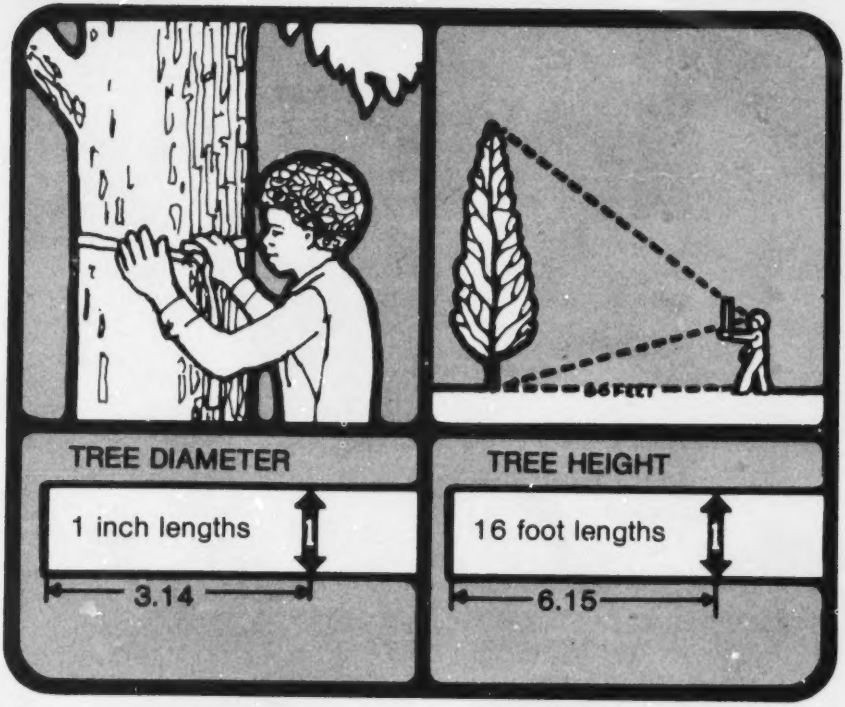
Rainmaking at home is not as hard as it sounds. All it takes to set your own water cycle in action are: two chairs, a metal serving tray, a steaming teakettle, a piece of ice or ice cubes, and a box of soil.

1. Place the metal tray with ice on it across two chairs.
2. Put a steaming teakettle under the tray—off to the side. Keep the kettle steaming by placing it on a hot plate or other safe heating device.
3. Place a box of soil directly under the metal tray. Half should be covered with grass or dead leaves, the other half left bare. Thus, the effects of raindrop erosion as well as a water cycle can be demonstrated.

The teakettle serves as the source of water. The water evaporates into steam and rises to the iced tray which represents the cool layers of air above the earth. The moisture condenses on the tray and drips back on the soil as rain. Then the cycle starts over again.

A white card placed along the edge of the soil box will show how grass or leaves protect soil from falling drops. Where there is no protection for the soil the card will be spattered with mud caused by "raindrop erosion."

Well-managed forests protect the soil from erosion.



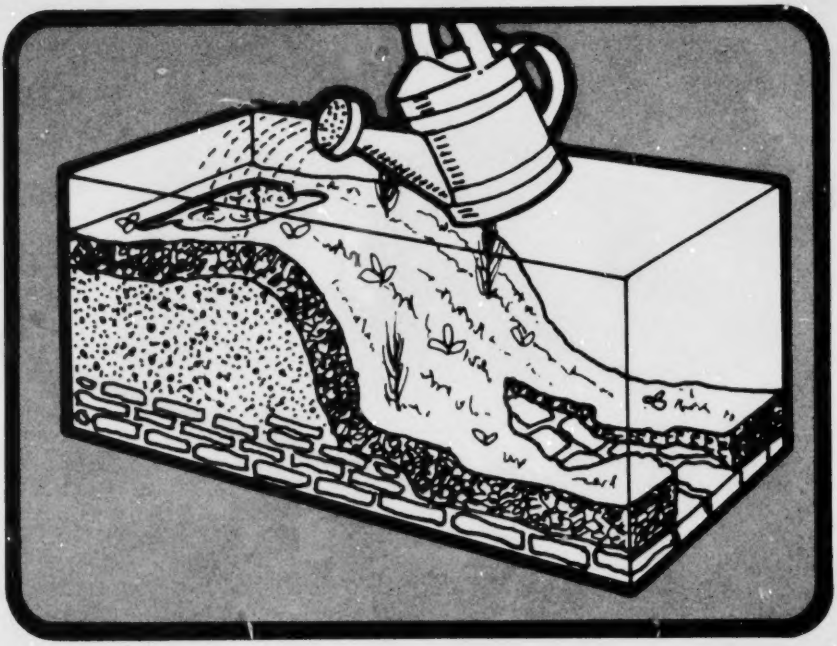
Diameter Tape and Cruising Stick

Foresters use cruising sticks to measure a tree's diameter and height. These facts are essential in figuring the amount of wood in a tree.

To measure tree diameter:
1. Cut a strip of flexible paper or cardboard about ½ inch wide and 45 inches long.
2. Begin at one end of the paper strip and make ink marks 3.14 inches apart. Number these marks consecutively starting with No. 1 on left end of tape. A measurement of 3.14 actual inches on your tape is equal to 1 inch in tree diameter.
3. To measure tree diameter, wrap tape around tree at breast height, about 4½ feet above the ground. The diameter of the tree in inches will be at the mark nearest where the tape overlaps the zero end.

To measure tree height:
1. Glue a strip of hard paper or cardboard on one side of a yardstick.
2. Begin at one end and make marks 6.15 inches apart with black ink.
3. Label the first mark 1, the second 2, and so on.
4. To measure the tree, stand 66 feet from it; hold arm out horizontally and the stick vertically at arm's reach—25 inches from eyes. Slide stick up or down until top of stick is in line with the top of the tree. Without moving head, sight to bottom of tree (be sure stick is still vertical) and see place on stick where line of sight crosses it. The nearest figure is the number of 16-foot lengths in the tree. If the figure is 2, there are two 16-foot lengths. The tree is 32 feet high—2 X 16 feet.

Forest landowners need to know the amount, extent, and condition of their timber resources. They can get this information through careful timber resource surveys.



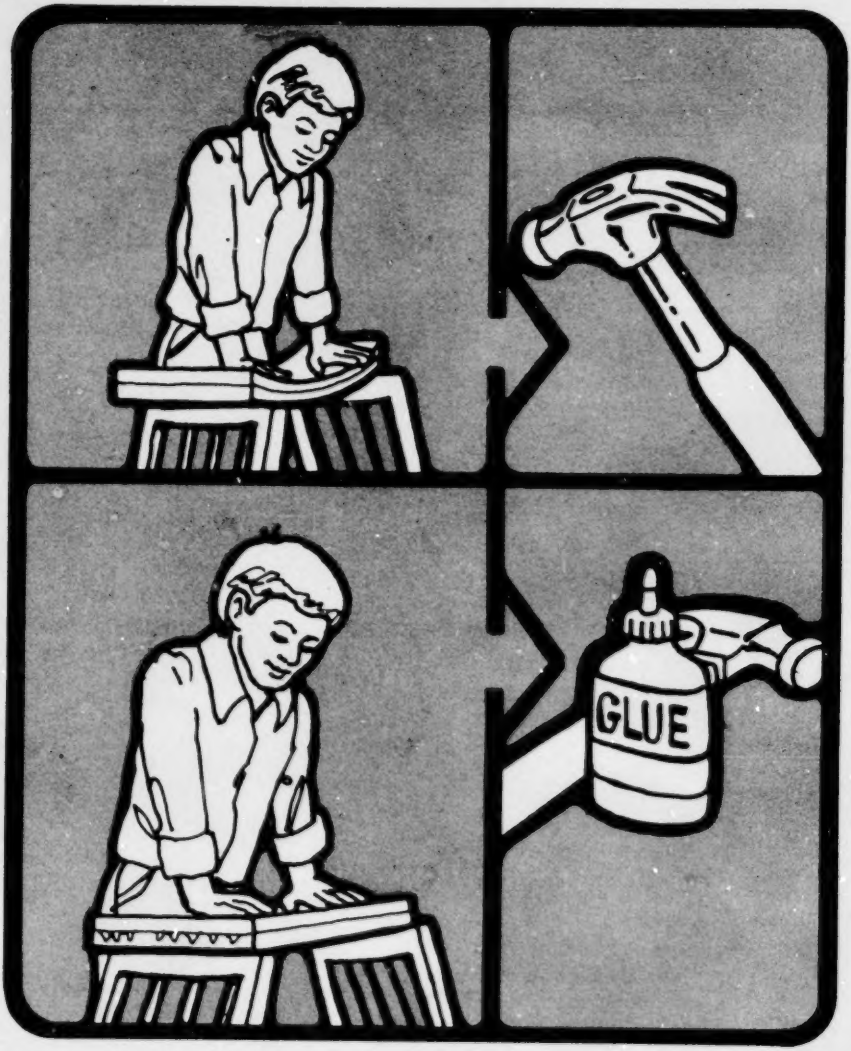
Model Watershed

See what makes a watershed work; what causes clear or dirty water; how streams are born and how lakes are formed. Demonstrate what happens when the water table drops. You can make a watershed.

Here's one method:

1. Place pieces of flagstone or rock on the bottom of a large aquarium tank. Put the straight edges against the glass.
2. Place a second layer of rocks over about two-thirds of the first layer. Then place a third layer about 1 or 2 inches back from the edge of the second layer.
3. Seal spaces between the rocks on top and the sides next to the glass tank with wax or putty. Avoid having the putty show on the glass.
4. Fill sand in one end to form a hill. Leave a slight depression at the top of the hill. Smooth the sand so it tapers from the hill to about 1 inch deep at the bottom of the tank.
5. Expose a small area of rock near the foot of the hill to resemble an outcropping ledge. Make a depression at the end of the slope for a lake. Scoop out a stream channel from the rock ledge to the lake.
6. Cover the whole surface with moss or sod, except the exposed part of the ledge, the stream bed, and the lake.
7. Set small plants, trees, and dried weeds on the hilltop and slopes to show a well-vegetated watershed.
8. Sprinkle water into the depression on the hilltop to represent rain. If enough water is used a tiny stream will trickle out of the soil at the base of the hill and run down over the rock ledge. It should then drain into the streambed on its way to the lake.

Watersheds are nature's water factories. If they are protected and carefully managed, they will deliver continuous supplies of good, clean water.



Don't Just Nail It

Wood is a versatile, easy to use, strong building material. It can be made even stronger by using proper wood joints. This is easy to show.

1. Nail two 6-foot boards face to face. Place them across two chairs or sawhorses. Apply downward pressure to their center. The boards bend considerably.

2. Now nail *and glue* two boards face to face and allow glue to set. When resting on two chairs or sawhorses these boards bend less under pressure than did the nailed boards.

Research has found ways for man to strengthen wood beyond the strength nature gave it. But much more research is needed to help us use more of the wood we cut each year. We now use only three-fourths of what we cut.

Building and Putting Out Campfires

Almost anybody can build a campfire . . . but not always a safe one. Most folks put out a campfire . . . but not always dead out. There are different ways to extinguish a campfire in different parts of the country. How should it be done in the desert where water is scarce? In rocky country where both soil and water are scarce?

Through schools, radio, TV, newspapers, exhibits, and demonstrations, techniques of building and extinguishing campfires can be brought to the attention of local people. Here are good rules that can't be repeated too often:

1. When camping or picnicking, find out if a campfire permit is required, and obtain one if needed.
2. Crush out all burning cigars, cigarettes, and pipe ashes on a rock or in mineral soil before discarding. Break and feel all matches before throwing them away. If they are hot, they may break into flame again.
3. When building a campfire, clear an area 10 feet in diameter—remove leaves, grass, and all other flammable material down to mineral soil. Build fire in the center and keep it small. Be especially careful when the wind is strong.
4. Never leave a campfire unattended . . . even for a few minutes.
5. Put fire out . . . dead out before leaving. Drown it with water; mix the ashes with mineral soil; bury ashes in sand or mineral soil. A combination of these methods is best. Always be sure the rocks around the fire are cool and are not sheltering some hot embers. Be extra careful with partially burned sticks and logs. Scrape them well and bury.
6. If you can do it safely, put out any uncontrolled fire you find burning and then report it to the nearest fire warden or forest ranger. If you need help, go to the nearest telephone; the operator will call the nearest forest fire station.

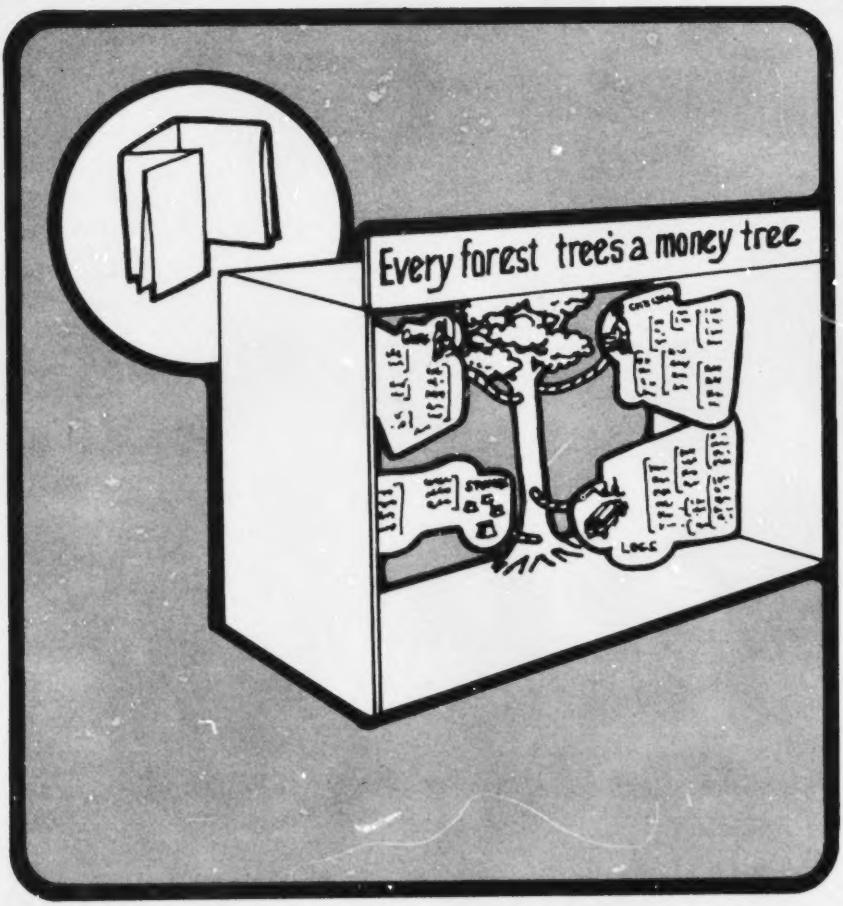
People cause 9 out of every 10 forest fires. Smokey says "Be careful with *every* fire!"

Making Informative Exhibits

Tree Insect Zoo

At little cost, an interesting and educational tree insect zoo can be had just for the fun of making it. Studying tree insects and what damage they do is an education in itself. Have a local entomologist, forester, or landscape architect point out and identify local tree insects. Collect live specimens, placing each kind in separate glass jars. Carefully label each jar to identify the insect, the kind of trees it attacks, the amount of damage it may do locally if uncontrolled, and methods of control. Make an attractive exhibit of the jars for public display.

Insects do as much damage to our forests each year as forest fires.

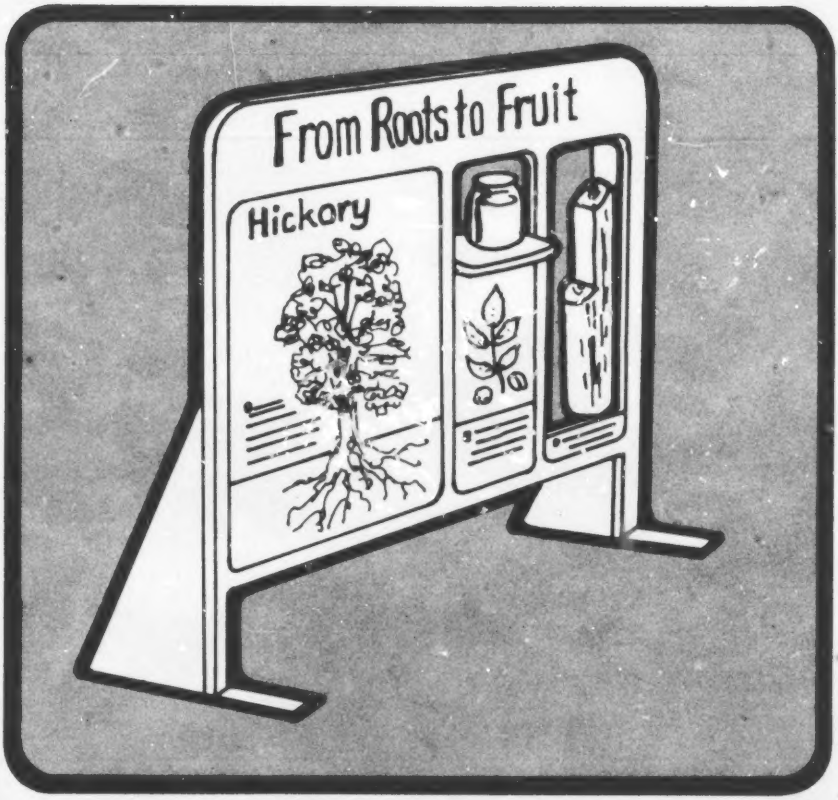


3-D Conservation Charts

Flat paper charts, maps, or graphs come alive in three dimensions. Making 3-D charts for exhibit, demonstration, or study purposes is a good conservation activity.

1. Obtain a conservation chart: For example, "What We Get From Trees," a Forest Service chart.
2. Cut out the tree and mount on heavy cardboard.
3. Cut out the chart sections which list the forest products we get from the respective parts of a tree. Mount these sections separately on cardboard.
4. Make an open front cardboard or exhibit box about 4×2×3 feet. Mount the title "What We Get From Trees" at the top of the open front.
5. Fasten the tree inside the box. Hang the separate cardboard sections from the box top with wire. String colored knitting yarn from the cardboard sections to the part of the tree that produces the products listed on the cardboard.
6. Place several small samples of wood byproducts under the tree.

Productive forests are essential to the American way of life.



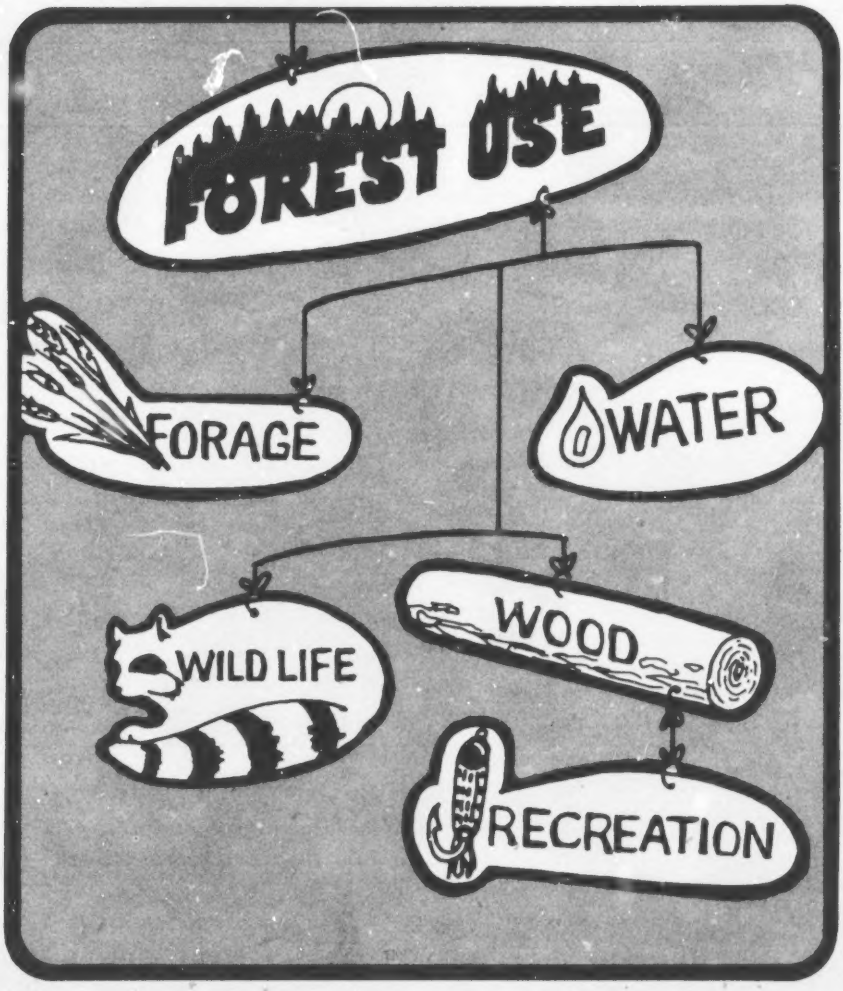
Tree Exhibit: From Roots to Fruit

You can make an interesting and valuable exhibit by showing different parts of a popular kind of local tree.

1. Choose a species of tree to show "From Roots to Fruit."
2. Prepare exhibits of seeds sprouting in a jar (p.2), leaf prints (p.27), and cutaway log section (p.13).
3. Photograph the species of tree you've chosen. Mount this photograph and the seed, leaf, and log exhibits on a durable wood or pressed board panel. This will make an eye-catching window display in a store, bank, or school.
4. On the tree you photographed, place an attractive poster with a large green check, explaining, "This is the tree which is shown 'From Roots to Fruit' in the bank window." Do not nail poster to tree.

Remember these basic exhibit rules: Choose a subject that is timely and of local interest. Plan ahead . . . know the audience and where the exhibit will be used. Tell the basic idea in an eye-catching title. Use attractive material. Keep the exhibit simple. Don't clutter it with extra words or unnecessary material.

To understand the need for conservation, we should first understand what we are trying to conserve.

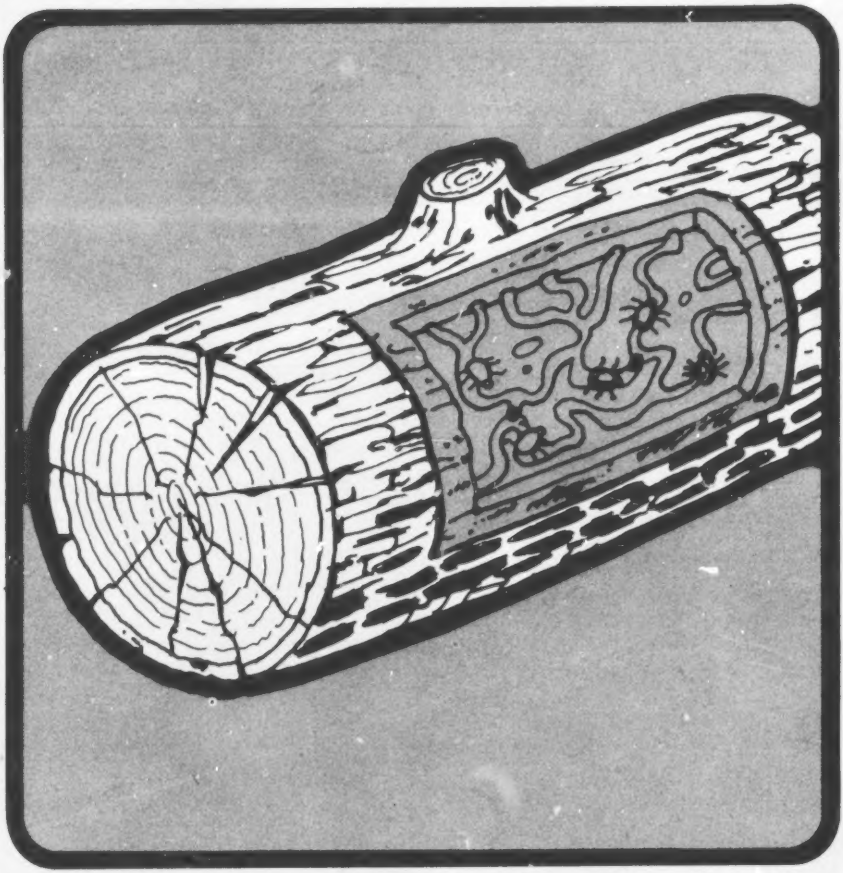


Forest Conservation Mobiles

Forest conservation means keeping the supply of forest resources in balance with the need for them. National forests are managed to get as many uses as possible from them without harm to any resource. The principle is to keep the several uses in balance with the supplies of the resources. Balances can be illustrated by mobiles.

1. Find out what forest resources have been most fully developed in your community and what uses are predominant.
2. Construct mobile frameworks from wire coat hangers.
3. Place the word "forest" at the top of the mobile. Balance this with cards or objects denoting development of local forest resources.

National forest resources are protected, managed, and used for the greatest good of the greatest number.



Window on the Insect World

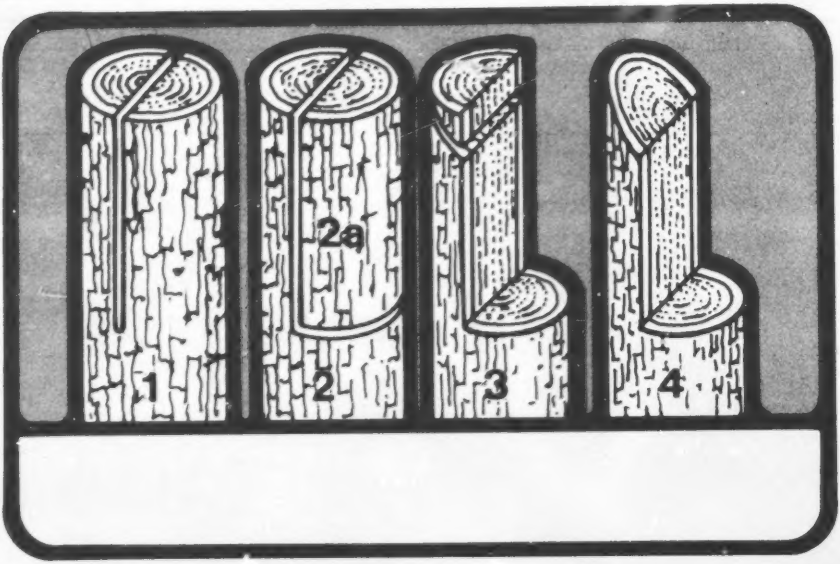
Every minute of the day and night billions of insects are busily chewing, biting, sucking, and boring away at our trees, gardens, homes, livestock, and agricultural crops. Insects destroy 10 percent of everything man attempts to grow. You can watch them at work, and see what and how they eat, by putting a window on the insect world.

1. With a forester's or entomologist's guidance obtain a section of insect-infested tree bark. You can also use leaf buds, leaves, or termite-infested wood.

2. Without disturbing the feeding insects cover the bark, leaves, buds, or wood with a thin sheet of plastic. Punch several small air holes. Leave enough space under the plastic so the insects can move freely.

3. Place on public display with adequate labels to tell the story of each kind of insect—the kind of trees it attacks, how much timber it kills or damages yearly; what is being done to control it.

If we could eliminate the timber losses from insects and other causes, we could nearly double our annual growth. This would help ensure timber supplies for our children and their children.



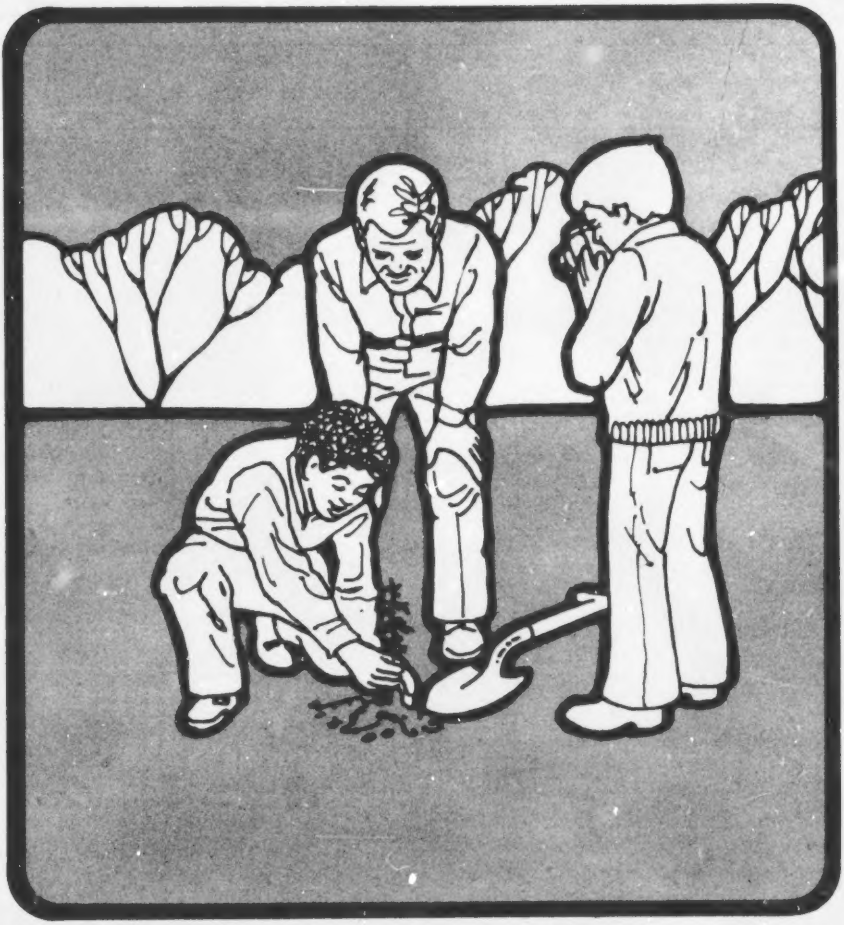
Trees—From the Inside—Out

With a little work, small round fireplace logs or tree branches will show what a tree looks like from the inside out. A cut away view will show the pith, heartwood, spring growth, cambium layer, and bark. Annual rings can be seen on a cross section; knots show where branches start; and rough sawed wood can be compared with a finished and varnished section. Here's how:

1. Obtain small sections of various local trees. You can get them from trees being cut for lumber or for other purposes. If green, allow to dry in a warm place for several weeks. Note age of samples and if taken from branch or trunk. *Get permission from the landowner before cutting either live or dead trees.*
2. Sections should be about 3 to 5 inches in diameter and about 12 inches long. Saw the ends squarely across.
3. Retain the bark. Saw sections lengthwise half way down the center. Remove one piece by sawing crosswise to the end of the lengthwise cut. Finally, saw a small diagonal piece off the top of the remaining half.
4. Sandpaper the top half of the cut-away sections and apply a coat of thin varnish or shellac. Leave the bottom half as rough sawed wood.
5. Insert small screw eye at end of each block. Hang on a board of native lumber. Add brief descriptive matter about each part of the log sections—name of tree, its range, fruit, leaves, and what its wood is used for.

More than 220 million Americans depend on 500 million acres of forest land for their wood supplies. By the year 2000, perhaps 300 million Americans will look to this same land (or maybe less) for their forest products.

1. Saw down center of wood.
2. Saw across wood to center, and remove piece (2a).
3. Saw diagonally across upper end, and remove piece.
4. Finished product showing bark, cross grain, vertical grain, and diagonal grain.



Forest Conservation in Pictures

The camera is a good conservation education tool.

1. Learn of good local forest conservation practices and make photographic essays or photo stories about them. Take the pictures at different times and at different angles to tell the story; now, take closeups to bring out details of the practices.
2. Make enlargements for public display and accompany them with attractively prepared descriptions.

Give conspicuous credit to the landowner or manager for his conservation efforts. Encourage others to follow his example.

Some forestry practices that can be photographed:

Tree planting, insect and disease control, forest fire prevention facilities. There are many more. Get suggestions from a local forester.

Forty-five million acres of forest land in the United States must be planted to trees if these acres are again to produce wood crops.

Getting Your Community Involved

Self-Guided Natural Resource Tour

Printed leaflets and sketch maps make good automobile tour guides. Cities, national forests, national parks, and commercial recreation developments use this device to encourage inexpensive and informative self-guided tours. Numbers in the text correspond with numbered objects or places on the tour. There are many opportunities for self-guided tours in your town.

1. Prepare a natural resource tour map of the local community. Include such features as a forest ranger station, lookout tower, wildlife food and shelter improvements, lake and stream developments, well-managed farm woodlots, tree plantations, firelines, and industrial properties under good cutting practices. Sawmills, pulpmills, factories, mines, and even department store windows displaying products made from local forests could be included in your map to show natural resource utilization.
2. Print and distribute the map and text.

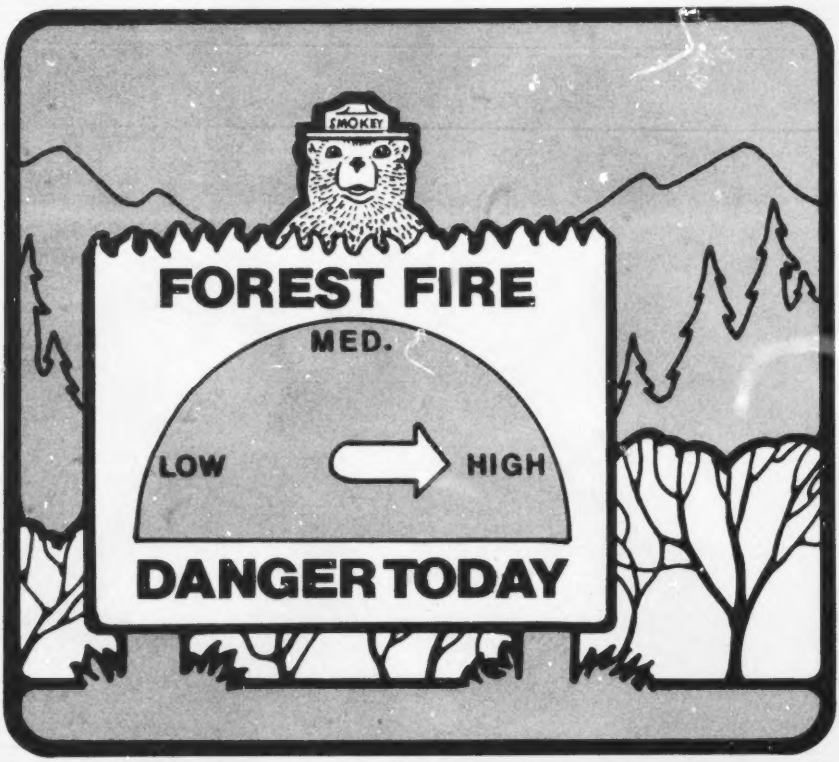
Natural resources are precious resources. They should be protected and managed carefully.

Sighting Forest Fire "Smokes"

"Jim—calling fire dispatcher. I have a smoke at 210 degrees—that's two-one-zero degrees . . . ." Quick and accurate locating of forest fires is a key factor in forest fire control. Here's one way to set up a practice forest fire finding system:

1. Make three or more fire finders. Cut a 24-inch circle out of cardboard. Divide its circumference into 360 degrees. Mount on a circular wood base.
2. To make the sighting bar, cut a strip of wood 24 inches long. Sharpen one end to a point and drive a finishing nail through it. Fasten a metal ring at the other end. These are the sights much like those on a rifle.
3. Pivot the middle of the sighting bar on the center of the circular base so it will rotate around the entire 360 degrees. Locate the smoke through the sights on the sighting bar, then read its location by degrees along the circle's edge.
4. Place fire finders in three or more homes around town, preferably in a triangle. Make sure the 360 degree line on each finder points north.
5. Obtain a map of the community and mark the location of the "lookouts" with a nail, string attached. Draw 6-inch circles around these spots. Divide the circumference of each circle into 360 degrees.
6. Assume the smoke is some feature like a water tower or steeple visible from all three "lookouts."
7. Each lookout can phone the location of the "smoke" by degrees, to the operator of the string map. By simple triangulation of the strings the fire can be located.

Forest firefighting is hard, dangerous, and costly work. If a forest fire is located while it is still small, the damages and costs are less.



Fire Danger Sign

A roadside fire danger sign is a valuable public service and a good way to advertise an organization's or school's interest in conservation. *Do not place signs where they will spoil scenery or otherwise be objectionable.*

A roadside fire danger sign can be any size or shape as long as it is approved by highway officials and others concerned and is attractive, can be easily read from a passing car, and has a movable danger indicator.

Suggestion for design and construction:

1. Shape the sign like a large thermometer, using a movable section of flexible red plastic (equal to length of the scale) for the mercury. The scale alongside the thermometer should read from bottom to top LOW, MEDIUM, HIGH, EXTREMELY HIGH at intervals of at least 1 foot. Label sign in large letters "FOREST FIRE DANGER TODAY." During fire season make sure the red plastic "mercury" reaches the point on the scale which fire officials report as the fire danger index for the day.
2. Make sign in shape of semicircular "clock face" with one movable hand. Divide face into four equal "pies" labeled LOW, MEDIUM, HIGH, EXTREMELY HIGH, from left to right. Set hand daily to proper danger rating.

Most people will be extra careful with matches, smokes, and campfires if they are reminded how easily a forest fire can start. So keep people alert to forest fire dangers.

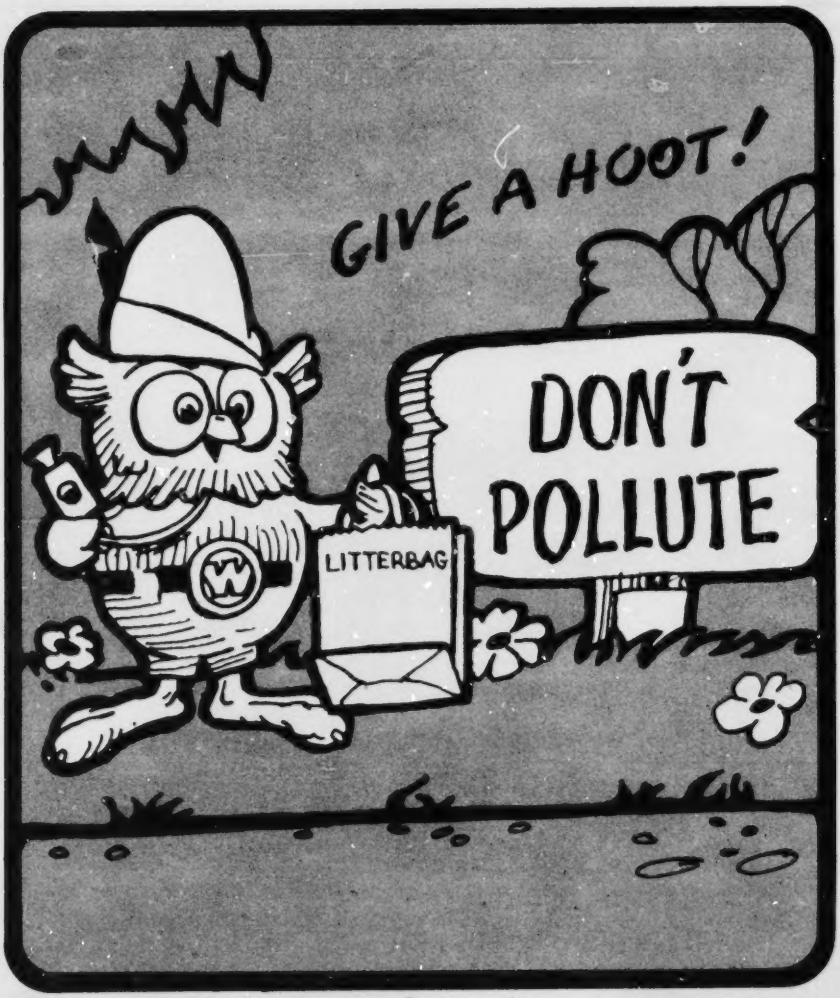
Conservation Trail

A conservation trail can be built almost anywhere there is a little land. Here's how:

Study your community to learn where possible conservation trail areas are located. Get permission from the landowner or manager to develop a conservation trail. Design the trail to take advantage of as many natural conservation features as possible. Remove dead limbs, loose rocks, and other safety hazards from the trail and adjacent areas. Where there are wet areas, provide stepping logs, stones, or simple foot bridges. Locate significant conservation features along the trail and label them with neat self-explanatory signs. Examples are tree names and their local uses, den trees, trees attacked by insects or disease, fire scars on trees, old "history book" stumps which show when cutting was done, wildlife food trees and shrubs, different kinds of rocks, various "layers" of the forest floor, and young trees started from seed, and by sprouting.

A conservation trail has no value unless it is used. Advertise it throughout your community. Erect explanatory signs at both ends of the trail. Make sure they blend with the natural surroundings. Identify the conservation trail with your group, organization, or school that developed it.

Natural resources are all around us and are of many kinds. To know their interrelationships is to understand how broad the field of conservation is.



Litterbags

Almost everyone likes to have a clean environment. Making and or distributing litterbags is a valuable community service. Here's how to do it:

1. A Woodsy Owl licensed manufacturer makes both paper and plastic litterbags. Perhaps a local business or industry can be persuaded to buy litterbags for an anti-litter campaign. Or,

2. You can make litterbags out of ordinary paper bags, lettered or decorated as you may choose. Make handles from heavy, flexible cardboard or twine stapled to the bag.

3. You can distribute bags conveniently at motor vehicle inspection stations, parking lots, picnic grounds, parks, and similar places.

Help Woodsy spread the word Give a hoot! Don't pollute!

For Better Outdoor Manners

Just as Smokey Bear reminds people to "prevent forest fires," Woodsy Owl reminds them to "Give a Hoot! Don't Pollute!"

Ways to Educate:

1. Litter (paper, tin cans, film wrappers, bottles, etc.) is pollution. Gather a weekend accumulation of litter from a local campground, picnic area, or strip of roadside. Get permission to display this rubbish so people will see it. Erect a sign nearby explaining where it came from and how much extra it costs to clean up an area when litter is scattered on the ground rather than placed in receptacles.
2. Display in a store window, or other prominent place, one discarded can or bottle with a sign or poster which might read:

I'm an empty can (or bottle). Someone threw me away. Was it you? I and others like me look bad along a road, in a stream, or under a picnic table.

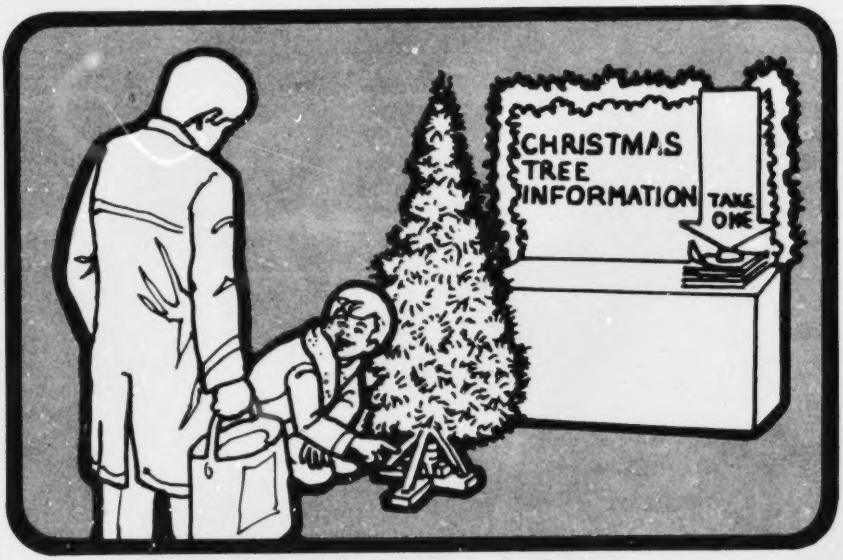
Remember what Woodsy Owl says: Give a hoot! Don't pollute!

Young Conservation Leaders

Young people can make significant contributions to conservation through their schools or the organizations to which they or their parents belong. With training in conservation, they can give public talks and organize and participate in conservation programs for student assemblies, 4-H clubs, Scout meetings, church groups, sportsmen's clubs, women's organizations, and farm groups. Help them do it.

1. Select 10 to 20 "conservation trainees," young people who have more than usual concern for the natural resources.
2. With the assistance of local foresters and other professional conservation people, conduct a series of conservation training meetings and field trips for these "conservation trainees." Give them suggestions for organizing and conducting effective conservation programs.
3. Supply the trainees with a few *and only a few* pamphlets or booklets containing sound and accurate conservation information. Acquaint them with sources of conservation visual aids such as slides, film strips, motion picture films, and charts. Stimulate their interest in using local material—tree specimens and pictures of community conservation areas.
4. Encourage the group to plan a public information conservation program to continue over a 6 or 12 months' period. Some of it can be done by the group, some by individual trainees, some by a few working together.
5. Maintain records of individual and group accomplishments.

Everyone depends on natural resources. So conservation is everybody's business.



Holiday Time

Keeping Christmas Trees Fresh and Safe

Christmas time and trees go together like Santa Claus and children. A school, church, or Scout group can perform a real community service by carrying out a "Keeping Christmas Trees Fresh and Safe" program. It can be based on the following:

1. Select a fresh tree. This might mean shopping early. A tree that has been on a sales lot for weeks without standing in water is likely to be dried out. Run your fingers along the branches to see if it feels fresh to the touch. Shake the tree to see if any needles drop off. If the needles stay on, they should hold through the holiday season.
2. As soon as you get the tree home, saw about an inch off the trunk.
3. Stand the trunk in a container of water and store in a cool, shady place. Splash cold water on tree daily.
4. Before you bring the tree in the house cut another inch off the trunk. Keep the tree standing in water all the time it is in the house. Don't be surprised if it drinks several quarts of water the first few days.
5. Be sure the tree is well supported. Keep the tree away from heat sources such as fireplaces, radiators, and TV sets.
6. Open flames such as lighted candles should never be used on or near Christmas trees and greens. When the tree lights are burning, check the tree periodically; turn the lights off when you go to bed or the family leaves home.
7. Check electric lights and connections. Avoid overloading the circuits. Replace worn, frayed wires and electric cords. Do not place electric trains around the tree.
8. Make sure there are no flammable materials such as package wrappings around the base of the tree.

This same information can be included in newspapers, radio and TV programs, theater announcements, etc.

Scientific growing and harvesting of Christmas trees is beneficial to the forest.

Forest Gifts at Christmas

Forests give us many things: Paper products, lumber, cellophane, phonograph records, rayon cloth, photo film, imitation leather, decorative items, molded plastics, crayons, soaps, chewing gums, sirups, perfumes, and thousands of other products. Christmas is a good time to illustrate these many gifts of the forests.

1. Hang unwrapped samples of forest products on Christmas tree branches.
2. Place other unwrapped forest products under the tree.
3. Display the tree in a prominent place in school, department or sporting goods store, bank, or church, with neat signs identifying each item and relating it to the forest.

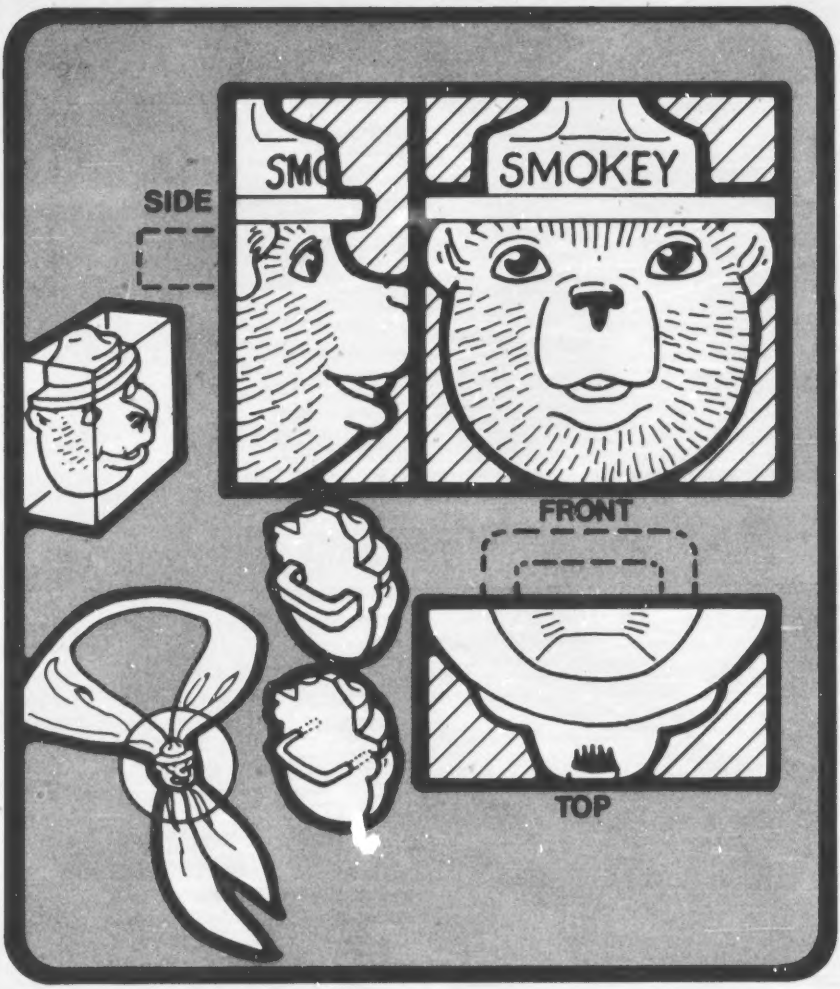
Wood is only one of many products of the forest. Some others are water, wildlife, recreational opportunities, and natural beauty.

Discarded Christmas Trees Improve Hunting and Fishing

Begin the New Year by improving wildlife and fish habitat. Discarded Christmas trees are excellent for plugging gullies, building check dams, and improving fish and small game habitat. Consult your local forester, county agent, or fish and wildlife service for the best method and area of tree placement. Start your campaign to gather trees before Christmas.

1. Before Christmas distribute handbills asking people to save their trees for conservation work. Tell who will collect them, and when.
2. Ask newspapers and radio and TV stations to publicize the project.
3. Have an adult conservation-minded civic group supply trucks and guidance.
4. After Christmas remind people of pickup dates by press, radio, and television.
5. Collect and pile the trees at central points so the sponsoring adult group can transport them to the work area.

Fish and game can survive only if they have enough food and cover. Land supporting wildlife can often be improved by using sound ecological practices.



Just for Fun

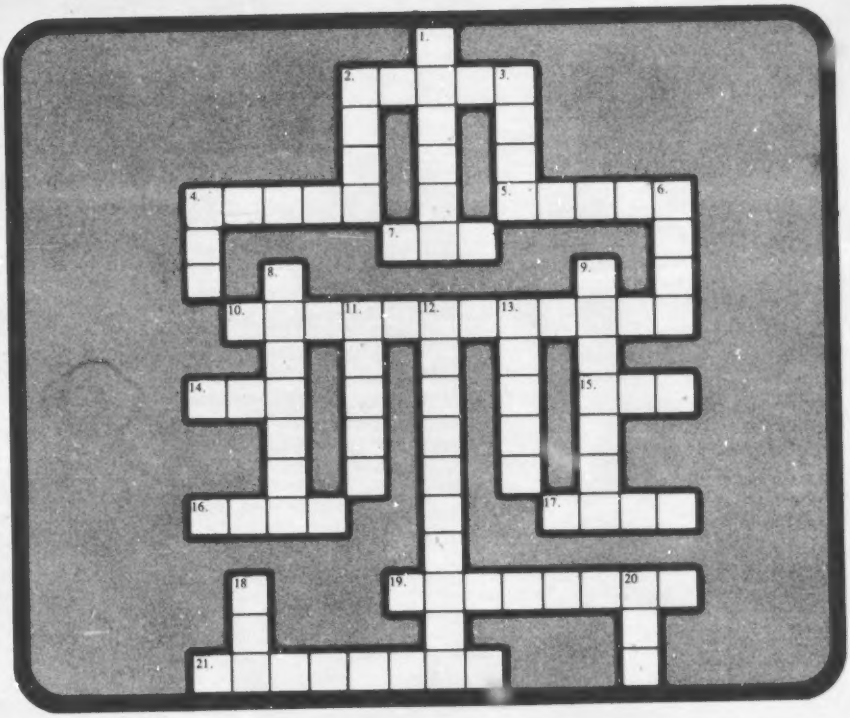
Smokey Neckerchief Slide

Trace the outline of "Smokey" on a piece of clear grained wood 1 inch thick, 2 inches long and 2⅛ inches wide. Cut out the shaded part with carving tools or pocketknife and then add details of eyes, nose, and hair as shown in drawing.

Carve a loop to hold the neckerchief from another piece of wood and glue it to the back or make it from heavy wire bent into a **U**-shape and insert it in back.

Color: After the figure has been carved and sanded smooth, use enamel paints to add color. Hat is yellow; nose, lower lip, and area around eyes, cream; fur, brown; tongue, red; teeth, white; eyeballs, white with black pupils.

It is easy to help Smokey prevent forest fires: Be careful with every fire.



Conservation Crossword Puzzle

Down

1. Body or group of persons. Conservation is for p_____.
2. To try out or to examine . . . like to try out certain tree seeds.
3. Basic natural resource in frozen airborne form. Skiers delight when they see it coming.
4. Stone of a fruitlike cherry or peach.
6. Lifeblood of the land . . . (falling from clouds).
8. Where there are trees, water, wildlife, and places to camp and picnic.
9. Nonrenewable natural resource found in the earth.
11. Natural resource vital to agriculture. (Pl.) Playing or relaxing outdoors.
12. Picnicking, fishing, hunting, swimming, skiing, and canoeing are often associated with this word.
13. To fish with a hook and line.
18. Large snake which crushes its prey.
20. Type of evergreen tree. Often used as Christmas trees.

Across

2. What forests are mostly made of . . . source of lumber and pulpwood.
4. To put in the ground to grow (v.). Living thing with roots (n.).
5. Most vital natural resource.
7. Large body of salt water containing many undeveloped natural resources.
10. Wise use of natural resources.
14. Sharp tool used in harvesting trees.
15. Large forest animal belonging to the deer family.
16. Finned creature of the water.
17. Waste material left after refining certain minerals.
19. Living things other than plantlife.
21. Popular form of boating on lakes and rivers.

Answers on page 29

Leaf Print Coasters and Place Mats

Leaf prints make attractive designs for coasters, place mats, trays, and other hand-decorated items. Here is how to make prints:

Place sheet of carbon paper on table, carbon side up. Place leaf, vein side down, on carbon paper and place sheet of paper over leaf and press with a warm iron. Remove top sheet of paper and place carboned side of leaf on material to which you want to transfer the leaf print. Press leaf with hot iron to transfer print. Spray with fixative such as lacquer to set print.

Leaves are nature's food-making factories. Without leaves, trees and other green plants could not grow. Without plants there would be no human or animal life.

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Materials to Help Teach Forest Conservation

Brief Pamphlets

FS-12 Why Leaves Change Their Color

FS-59 Conservation Fact Sheet

FS-99 Forests and the Natural Water Cycle

FS-313 Woodsy Owl on Hiking and Backpacking

AIB-305 Your Water Supply and Forests

MP-861 Products of American Forests

PA-837 Teaching Conservation Through Outdoor Education Areas

Woodsy Owl Teachers Kit

Posters (colored)

Smokey Bear—Forest Fire Prevention (13 X 18½ inches)

Woodsy Owl—Give a Hoot, Don't Pollute (13 X 18½ inches)

Charts (black and white)

FS-32 How a Tree Grows (8 X 10½ inches)

FS-57 How Fire Ruins Timber (8 X 10½ inches)

Motion Pictures

FS-31 Forest Service Films. Catalog listing over fifty 16-mm films available on free loan to schools and others.

How to Order

Single copies of publications may be obtained free from Regional Forester, Forest Service, U.S. Department of Agriculture, at—

Federal Building, Missoula, MT 59801 (for North Dakota, Montana, Idaho north of Salmon River).

11177 W. 8th Ave., Box 25127, Lakewood, CO 80225 (for Colorado, Kansas, Nebraska, South Dakota, Wyoming).

Federal Building, 517 Gold Ave. SW., Albuquerque, NM 87102 (for Arizona and New Mexico)

Federal Building, 324 25th St., Ogden, UT 84401 (for Nevada, Utah, southern Idaho).

630 Sansome St., San Francisco, CA 94111 (for California and Hawaii).

319 SW. Pine St., Box 3632, Portland, OR 97208 (for Oregon and Washington).

1720 Peachtree Rd., NW., Atlanta, GA 30309 (for Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, Virgin Islands, Virginia).

633 W. Wisconsin Ave., Milwaukee, WI 53203 (for Connecticut, Delaware, Illinois, Iowa, Indiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, Wisconsin).

Federal Office Bldg., Box 1628, Juneau, AK 99802 (for Alaska).

or Forest Service, U.S. Department of Agriculture, Washington, DC 20250.

Answers to Crossword Puzzle

Down

1. people
2. test
3. snow
4. pit
6. rain
8. forests
9. mineral
11. soils
12. recreation
13. angle
18. boa
20. fir

Across

2. trees
4. plant
5. water
7. sea
10. conservation
14. axe
15. elk
16. fish
17. slag
19. wildlife
21. canoeing

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